THE GOVERNOR'S REPORT

DROUGHT IN MONTANA

June 2005

The Honorable Governor Brian Schweitzer

Prepared by

The Montana Drought Advisory Committee

http://drought.mt.gov/

http://www.nris.state.mt.us/drought/

http://www.dnrc.state.mt.us/Drought/index.html

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Introduction

As Montana enters its sixth consecutive year of drought, hope for recovery from poor water supply and moisture conditions has been lifted by three months of normal, or better, precipitation over much of the state. But while the short-term trend is a good sign that improvement may continue, it fails to acknowledge the implications of the long-term water supply outlook. The verdant and robust winter wheat crop, or the hayfields and rural landscape across much of the state, belie the drought languishing beneath the earth's surface and in the cores of the largest trees.

The fact that mountain snowpack that did not average much more than 50 to 60 percent of average west of the Continental Divide, does not bode well for the prospects of normal water supply conditions in Montana's headwaters of the Columbia River this summer and fall. East of the Continental Divide, a strong finish to the period of snow water accumulation, beginning about March 7, and continuing well into May, improved the outlook for a normal surface water supply for 2005 in the Missouri and Yellowstone river basins. Following the lowest precipitation for the month of February on record for the state, snow and rain in March, April, May and June have lifted the water supply outlook by as much as 30 percent from where it had been.

Cooler than average temperatures have played a key role in forestalling the high elevation snow melt period, buying precious time for water users and for instream uses, such as recreation and aquatic life. But without continued precipitation at all elevations into July, the harsh reality of the longest period of drought for the state since the 1930s, will reappear with the heat of summer to remind us all that complete recovery may take more than one year. This does not mean that we cannot expect recovery in the agricultural and meteorological, or short-term aspects of the drought. It does, however mean that it would be unrealistic to expect recovery from the socio-economic and hydrological, or longer-term aspects of drought, any time soon (Types of Drought - Appendix A).

Groundwater levels in some parts of the state have been declining steadily for over four years, impacting agricultural, municipal, and residential uses. Falling aquifers have left streamflow unsupported as summer wore on each year since 2000, impacting irrigated agriculture, fabled fisheries, and water storage projects. Soil moisture below the depth of one foot, tells the story of the drought much like the tree rings for the past six years will for decades to come. And the human toll is irreversible for some, having been forced to liquidate generations-old family concerns. Remaining unmeasured is the toll the drought has exacted from many Montanans in terms of stress, anguish, and economic failure.

The Governor's Report is required to describe the potential for drought for the coming season. In fact, the report attempts to describe the *potential for recovery* from drought, as it has for the past five years. Recovery must be assessed both in the short- and long-terms. The Governor's Drought Advisory Committee uses a variety of scientific indices of water supply and moisture conditions to track recovery. Although the current trend in weather is positive, only time will tell whether continued precipitation can support further recovery. Assessing recovery with respect to socio-economic impacts of the drought poses a continuing challenge to the drought advisory committee. It is most likely to be the last aspect of the drought to indicate recovery.

Executive Summary

The Montana Governor's Drought Advisory Committee is charged with monitoring and reporting water supply and moisture conditions, enabling Montanans to mitigate impacts associated with drought in a proactive manner. The committee met March 22, April 21, May 19, and June 16, 2005 to assess moisture and water supply conditions pursuant to MCA 2-15-3308. Improvement in conditions since March indicates that recovery from drought is underway over most of the state. However, recovery in areas hit hardest by drought over the last five years will take longer than areas less impacted over that period of time. Long-term indicators of drought continue to indicate that drought persists in parts of the state.

In 2004 the committee introduced a new system for classifying various degrees of drought that includes six categories: *No Drought – Moist*; *No Drought; Slightly Dry; Moderately Dry; Severely Dry*; and *Extremely Dry*. The Drought Status Map for June 16 indicates that 39 counties are in the Slightly Dry category; 10 counties are in the Moderately Dry category; and 3 counties are classified as Severely Dry, down from May when 13 counties were ranked in that category. Presently, four counties are in the No Drought category. There are no counties in either the No Drought – Moist, or Extremely Dry categories at this time. Counties classified as within the No Drought category as of June 16 include three counties on the Hi-line: Blaine, Phillips, and Valley; and one west of the Divide, Lake County. East of the Divide, there are eight counties in the Moderately Dry category with two others west of the Divide. Three counties west of the Divide are in the Severely Dry category: Lincoln, Sanders, and Ravalli.

East of the Divide, spring moisture had missed Hi-line counties from Glacier National Park to Havre. But June has brought up to four inches of moisture, or more to the central Hi-line. Late spring snows over the course of March and April have helped boost the water supply outlook for the headwaters of the Missouri and Yellowstone Rivers. Reservoir and groundwater levels have responded very well to recent moisture, and sub-soil moisture has finally improved following years of poor conditions across the state. However, without continued precipitation and moderate temperatures, the state remains vulnerable from the long-term effects of drought.

At this time, much of Montana seems to be emerging from the drought. Normal to above normal precipitation received over significant parts of the state has brought relief from the meteorological and agricultural drought. However, some hydrological and socio-economic aspects of the drought linger. Streamflow in a number of rivers remains 20 to 30 percent below historical averages and experts feel other rivers will follow the same pattern, as the warmer and drier months arrive. West of the Continental Divide, surface water shortages could occur this summer without continued rains, due to well below average mountain snowpack this past winter.

The USDA Natural Disaster Determination (NDD) for 35 counties in 2004 remains active for 2004 season damage claims through June 28, 2005. At this time, no county commissions are requesting an NDD from the USDA for 2005.The potential for impacts from drought in Montana is ***Moderate***, with some impacts expected for groundwater and surface water uses, including irrigated agriculture, municipal water supplies, and for instream uses, such as recreation, fisheries, and other aquatic life. The potential for drought to impact dryland farming is ***Low to Moderate***. It is important to remember that low streamflow, wildfire, and other impacts from dry and warm weather are not uncommon by late summer in Montana in any given year.

CURRENT WATER SUPPLY AND MOISTURE CONDITIONS

Mountain Snowpack

Most of the annual streamflow in Montana originates as snowfall that accumulates high in the mountains during fall, winter, and spring. Aquifers, lakes, streams, and reservoirs are largely dependent on runoff from mountain snowpack. As the snow pack accumulates, hydrologists forecast the runoff that will occur when it melts and in turn, streamflow for the summer months. Montana's mountain snowpack generally accounts for 80 percent of streamflow in spring and early summer in Montana's higher elevation river valleys.

The Natural Resource Conservation Service (NRCS) reported that the peak statewide of snow water content of the mountain snowpack for 2005 occurred about May 3. NRCS reported that the snow water of mountain snowpack on May 3 ranged from well below average to below average, or between 55 and 75 percent of average statewide. The snow water content of remaining mountain snowpack, west of the Continental Divide, averaged only 56 percent of the 30-year average for the period 1971 through 2000.

Unseasonably warm temperatures and rain at high elevations, especially west of the Continental Divide, during the middle of the snow accumulation season, caused the mountain snowpack to lose about 20 percent of its snow water content to premature runoff. The Kootenai River basin had snow water content of 51 percent; the Flathead River basin 63 percent; the Upper Clark Fork 70 percent; the Bitterroot 50 percent; and the Lower Clark Fork 52 percent of the 30-year average by May 3. Total mountain precipitation for the water year, October 1, 2004 through May 3, 2005, west of the Divide ranged from 65 to nearly 80 percent of average.

The maximum snow water content of the season for the headwaters of the Missouri and Yellowstone River basins occurred about May 3, at about 80 and 70 percent of average, respectively. As of May 16, total mountain precipitation for the water year east of the Continental Divide ranged from about 75 to 85 percent of average with some exceptions including the Tongue River basin at 114 percent and the Lower Yellowstone at 95 percent of average. Along the Rocky Mountain Front snow water content of the Sun-Teton-Marias and St. Mary River Basins occurred around May 3 at only about 60 percent. But spring snowstorms beginning in mid-March brought the snow water content of the Smith-Judith-Musselshell river basins up to 96 percent by May 3.

A state all-time record low for precipitation for the month of February was followed by above average mountain precipitation in March and April and the first two weeks of May east of the Continental Divide, allowing water content in nine of twelve major river basins to rise to 75 percent of average or better. However, west of the Divide three of the five major basins never reached much above 50 percent of average for snow water content. Moderate temperatures and above average mountain precipitation has lifted the water supply outlook into the average range in most river basins on both sides of the Continental Divide.

Precipitation

According to the National Weather Service, precipitation received, on average by climate division, stands at average to below average, for the Water Year (Oct. 1, 2004 through May 31, 2005). As of May 1, the Northwest division was at 82 percent of average. The Southwest and Central divisions were slightly below average, at 89 percent, and the Northcentral division was below average at 80 percent. The Southcentral, Southeast divisions were above average for the water year with 107 and 117 percent of average, respectively, and the Northeast was average. Precipitation figures from the for the period of May 1 through May 31 indicated much of the state was average or better, with the exception of the Northcentral division at 50 percent. But June moisture has improved the Northeast Division. (See Figure 2. Montana Precipitation for the Water Year)

The Weather Service Drought/Precipitation Summary for June 15 indicated that "Unsettled and cool conditions dominated the first two weeks of June. Cut Bank has the 4th wettest June of record so far." Heavy rains brought flooding to a number of locations across the state. The Drought / Precipitation Summary showed that for the period of October 1, 2004 through June14, 2005 Helena had received 8.23 inches of moisture, or 122 percent of average for that period; Miles City had received 10.06 inches or 121 percent; Baker 14.27 inches or 209 percent; Jordan 9.61 inches or 157 percent; Missoula 9.16 inches, or 95 percent; Butte 7.15 inches, or 91 percent; Dillon 8.50 inches or 145 percent; and Bozeman with 8.83 inches, or 91 percent of average precipitation.
See: http://www.wrh.noaa.gov/tfx/pdfs/hydro/drought_semi.pdf

According to the NRCS June 1, 2005 Water Supply Outlook Report, mountain and valley precipitation for the period of October 1, 2003 through May 31, 2005 was 82 percent of average and 91 percent of last year for Montana, both east and west of the Continental Divide. For the month of May, mountains and valleys statewide received 105 percent of average precipitation, with locations east of the Divide averaging 105 percent, and areas west of the Divide 105 percent of average moisture. Water year precipitation through May 31 was 78 percent of average west of the Continental Divide, and 86 percent of average east of the Divide.

Montana has experienced over five consecutive years of drought. According to the National Weather Service, multi-county areas of Southcentral, Southwest, and Northwest Montana have cumulative 6-year precipitation departures of 15 to over 25 inches below average. Only counties in the Northeast area of the state and along the eastern Hi-Line are showing precipitation within the average range for the period. See Map: Montana Precipitation Six-Year Departure from Normal (January 1999 – May 2005) and www.wrh.noaa.gov/tfx/pdfs/hydro/mt_1996.pdf

Precipitation Statewide for Selected Time Periods
October 1, 2004 - May 31, 2005
National Weather Service

Division	10/1/04 - 5/31/05	5/1/05 - 5/31/05
Western	82	109
Southwest	89	96
Northcentral	80	50
Central	89	78
Southcentral	107	141
Northeast	99	128
Southeast	117	165

http://www.wrh.noaa.gov/tfx/tx.php?wfo=tfx&type=html&loc=text&fx=wateryear
http://www.wrh.noaa.gov/tfx/tx.php?wfo=tfx&type=html&loc=text&fx=watermonth

Soil Moisture

According to the national Climate Prediction Center, the June 25, 2005 Palmer Drought Severity Index (PDSI), the Northwest division is rated as "Normal," the Northeast as in a "Moist spell," and the Southeast climate division is currently rated as in an "Unusually moist spell." The Southcentral division is rated in the "Mild drought" category, the Northcentral division is rated as "Severe drought," and the Southwestern and Central divisions are in the "Extreme drought" category. Current PDSI figures indicate that from about two to over seven inches of precipitation are necessary in coming weeks to bring four divisions of seven in Montana to within the normal soil moisture range. As a long-term indicator of drought, the PDSI is slow to change, as moist conditions return to the land.

According to the June 19, 2005 Montana Agricultural Statistics Service Crop Weather Report, topsoil moisture across the state is rated 1 percent very short, 6 percent short, 82 percent adequate, and 11 percent surplus. Subsoil moisture is rated 7 percent very short, 20 percent short, 68 percent adequate, and 5 percent surplus. Last year at this time, topsoil was rated 9 percent very short, 21 percent short, 65 percent adequate, and 5 percent surplus. Subsoil at this time in 2004 was 28 percent very short, 33 percent short, and 38 percent adequate.

For both top- and sub-soil moisture the very short and adequate categories are improved markedly. Continued average to above average precipitation over the next two months, accompanied by average to below average temperatures, will be needed to address soil moisture deficits in the northcentral, southwest, and central areas of the state.

Winter wheat crop conditions are similar to last year at this time and are now rated 5 percent poor, 31 percent fair, 45 percent good, and 19 percent excellent. Last year at this time, the winter wheat crop was rated 12 percent poor, 32 percent fair, 41 percent good, and 11 percent excellent. Recent episodes of frost have damaged winter wheat in several areas of the state. A May 12 news release from Montana Agricultural Statistics Service stated that winter wheat acres planted for this season is up 250,000 acres from last year at this time. Total projected acreage harvested this year is 2.05 million acres, up 420,000 acres from 2004.

Agricultural Statistics Service reports that pasture and range feed conditions are currently rated 4 percent very poor, 9 percent poor, 28 percent fair, 44 percent good, and 15 percent excellent. This compares favorably with last year at this time when range and feed conditions were rated as 14 percent very poor, 26 percent poor, 34 percent fair, 22 percent good, and 4 percent excellent. Range conditions across Montana have suffered damage periodically from windy and dry conditions over the past five years and are expected to take two years to fully recover.

Reservoir Storage

As of June 1, 2005, the U.S. Geological Survey reported that water storage was above normal at two, normal at three, and below normal at one of six major hydroelectric reservoirs in Montana. Storage for April was above normal for Lake Koocanusa and Hungry Horse Reservoir. Storage was normal at Canyon Ferry, Bighorn, and Flathead Lakes, and below normal at Fort Peck Lake. Water storage remained normal during May at two of the major irrigation reservoirs, Lima and Gibson reservoirs, and below normal at Clark Canyon and Fresno reservoirs. (See Table 3.)

Nine of 18 state-owned water storage projects have contents of over 100 percent, seven have contents of between 65 and 100 percent of normal, and two other others, Deadman's Basin and Yellow Water, have contents of 52 and 23 percent of average as of June 15. Inflow to storage projects remained behind schedule due to unseasonably cool weather in April. But heavy localized precipitation in May and June brought inflows and storage up sharply at state-owned projects, including Cooney, West Fork Bitterroot, Tongue, Willow Creek, Frenchman, Middle Creek, Nevada Creek, Ruby, Nilan, Deadman's Basin, and the North Fork of the Smith River reservoirs. The prospects for additional storage are decreasing as the mountain snowmelt concludes and the drier months arrive. Without continued average to above average precipitation, shortages can be expected at a few state reservoirs by late summer. See (Table 4. State-Owned Reservoir Content Report, June 15, 2005).

According to the NRCS June 1, 2005 Water Supply Outlook Report, major reservoir storage statewide was 85 percent of average and 102 percent of last year at this time. West of the Continental Divide, reservoir storage was 133 percent of average and 105 percent of June 1, 2004 levels. East of the Divide, reservoir storage was 67 percent of average and 100 percent of storage last year at the same time.

The U.S. Bureau of Reclamation reports that, as of June14, 2005, storage at Clark Canyon Reservoir, in the headwaters of the Missouri River basin, was at 64,926 acre-feet compared with 44,352 acre- feet at this time in 2004. Spring snowstorms brought the water content of the mountain snowpack close to 100 percent of average in parts of the headwaters of the Missouri River basin. Although April inflows were the second lowest of record, Clark Canyon's prospects have improved markedly in recent weeks. This year the East Bench Irrigation District water users will take delivery of some irrigation water in contrast to 2004 when they received no stored water from the project. See (Table 3. U.S. Bureau of Reclamation Reservoirs).

Also in the headwaters of the Missouri, Hebgen Lake is currently at about 115 percent of average storage and releasing about 875 cubic feet per second (cfs) to the Madison River. Improved snowpack has improved prospects for Hebgen Lake from inflow of the Madison River originating in Yellowstone National Park. Canyon Ferry Reservoir, on the Upper Missouri River, has contents of 101 percent of average, with snow water remaining in the mountain snowpack of its headwaters at 100 percent of average for this date. Canyon Ferry is expected to fill allowing an adequate release from the project to support downstream fisheries.

Gibson Reservoir, located on the Sun River, had contents of 110 percent of average, with inflows at about 80 percent of average as of June 14. With only 20 percent snowpack in its headwaters, Gibson will most likely only fill one time, and water users could experience shortages of irrigation water later this summer. Sherburne Reservoir on the St. Mary River is currently at 125 percent of average storage. Sherburne supplies water from the St. Mary River Basin to the Milk River Basin water users.

Fresno and Nelson reservoirs on the Milk River are 108 and 82 percent of average, respectively, in contrast with last year at this time, when they were at 65 and 103 percent of average. The irrigation season has started in the Milk River Basin and Fresno is releasing 775 cfs to the river. The reservoir is expected to come within about five feet of full pool and water users may experience shortages later in the season without continued precipitation. Lake Elwell, on the Marias River, is at 91 percent of average. With only 30 percent of average snowpack remaining, Lake Elwell will only fill to within 10 feet of full pool. The planned release of 500 cfs to the Marias River will only be enough to sustain the fishery there.

Hungry Horse Reservoir, on the South Fork of the Flathead River had 128 percent of average storage as of June 1. Bighorn Lake on the Bighorn River, a tributary of the Yellowstone River, has storage of 107 percent of average, and is releasing about 2,000 cfs to the Bighorn River downstream fishery. The reservoir is expected to fill close to full pool.

Streamflow

According to a June 1, 2005 news release from the U.S. Geological Survey, monthly mean streamflow for May was below normal at six, and normal at two of eight long-term gauging stations. The monthly mean streamflow was below normal on the Blackfoot River near Bonner, the Yaak River near Troy, the Clark Fork at St. Regis, Middle Fork of the Flathead River near West Glacier, the Marias River near Shelby, and on Rock Creek below Horse Creek near International Boundary. The monthly mean streamflow for May was normal on the on the Yellowstone River at Corwin Springs and the Yellowstone River at Billings. (See Table 2. May 2005 Streamflow in Montana)

As of May 20, the Missouri River Basin tributaries near average to slightly above average, while the Lower Missouri River was below average. The Big Hole River near Melrose was very close to average at about 3,000 cfs on May 20. The Jefferson River at Twin Bridges was average at about 3,500 cfs; the Jefferson near Three Forks was above average at 4,000 cfs when compared to the average at about 2,800 cfs; the Gallatin River at Gallatin Gateway was above average at about

2,700 cfs, compared to an average of about 1,900 cfs; and the Smith River was flowing at about 700 cfs compared with the average at about 300 cfs. The Missouri River at Ulm was below average at about 5,900 cfs when compared with the 47-year average flow for May 20 of about 8,300 cfs, and the Missouri at Landusky was below average at 12,000 cfs compared with the average flow of 13,000 cfs. See: http://waterdata.usgs.gov/mt/nwis/current?type=flow

The Upper Missouri ended the snow accumulation period on about May 3, 2005 with snow water content at about 80 percent of average, while the Rocky Mountain Front tributaries of the Sun, Teton, and Marias rivers failed to exceed 60 percent of average by the same date. Late season snowstorms did, however, add considerable snow water content to the "Island" mountain ranges of central Montana with the Smith, Judith, and Musselshell basins reaching a composite figure of 96 percent of average by May 3. The Musselshell River at Harlowton was well above average on May 20 with a flow of about 700 cfs, compared with the 97-year average for that date of about 300 cfs. This was good news for the drought-stricken water users and reservoirs of the Musselshell River.

The Yellowstone River at Corwin Springs, upstream of Livingston, reached 17,000 cfs on May 21, well above the 98-year average for that date of about 6,500 cfs. The Yellowstone River at Billings reached almost 35,000 cfs by May 22, well above the 77-year average for that date of about 13,000 cfs. Snowstorms as late as early May played a key role in increasing snow water content in the Upper and Lower Yellowstone River basins. The Yellowstone River at Miles City measured nearly 37,000 cfs on May 23, well above the 77-year average for that date of about 18,000 cfs. Montana DNRC reported that the Tongue Reservoir increased its water storage by over 23,000 acre feet between April 30 and May 16, following precipitation reported by the National Weather Service of from three to five inches in the area between May 7th and the 10th.

West of the Continental Divide, the flow rate of Middle Fork of the Flathead River, as of May 21 was at about 7,000 cfs, compared with an average flow of 10,000 cfs for that date, and heading steadily downward. In the headwaters of the Clark Fork River, flow of the Blackfoot River near Bonner was at about 4,700 cfs, compared with an average of 5,000 cfs and heading downward in flow. The Yaak River at Troy measured about 1,700 cfs as of May 21 compared to an average flow for that date of 3,500 cfs. And the St. Regis River near St. Regis measured only about 1,100 cfs, compared with an average for May 21 of about 2,000 cfs.

According to the NRCS June 1, 2005 Montana Water Supply Outlook Report, streamflows statewide are forecasted to range from 49 to 57 percent of average west of the Continental Divide and between 51 and 67 percent of average east of the Divide for the period of May through July. According to the NRCS, "May's moisture is exactly what was needed to keep hopes of avoiding severe water shortages alive. With the very low winter snowpack, rain is what will get surface water users through one more summer and hope for a better winter next year." As was true at this time last year, rains will be critical to maintain streamflows into the summer months.

As of June 1, streamflow of the upper Clark Fork River is expected to range from 57 to 68 percent of average from through July. The lower Clark Fork should range between 41 and 48 percent, or about 15 percent lower than last year at this time. The Bitterroot River is expected to range from 45 to 51 percent, the Flathead River from 47 to 54 percent, and the Kootenai River from 50 to 58 percent of the 30-year average, or about 10 percent worse than forecast at this time in 2004.

East of the Continental Divide, streamflow for the Missouri River were forecasted to range from 45 to 62 percent of average as of June 1. The lower Yellowstone River was expected to range from 72 to 85 percent of average, and the upper Yellowstone between about 58 and 72 percent through July. Precipitation received in the headwaters of both rivers, as reported by the National Weather Service, for the period of June 1–14, measuring in the range of between 125 and over 200 percent of average, has changed actual streamflow dramatically from forecasts made near the first of the month. However, whether improved flow can be sustained will depend largely upon continued precipitation in the average to above average range.

Surface Water Supply Index

The Natural Resources Conservation Service generates the Surface Water Supply Index (SWSI) as a projection of surface water availability for about 50 Montana river basins based on mountain snowpack, mountain and valley precipitation, streamflow, soil moisture, and reservoir storage. The SWSI is used to forecast surface water supply, and is best applied to mountainous areas with surface water supplies that are primarily dependent on spring runoff of mountain snowpack. See (Map Figure 1. SWSI values as of June 1, 2005) http://nris.state.mt.us/wis/SWSInteractive/

As of June 1, 2005, 10 of the state's river basins were ranked as Extremely dry (-3.0 to -4.0) compared with the May 1 SWSI Map when 35 basins were so ranked. Twenty-three other river basins had SWSI values from –2.0 to -2.9, or Moderately Dry. Eleven river basins were rated in the Slightly Dry category and five basins were rated as Near Average. The Missouri River below Fort Peck, had a SWSI of -4.0; and the Fischer, Little Bitterroot, Middle Fork of the Flathead, Missouri River below Canyon Ferry had SWSI values ranging from –3.5 to –3.9. The Bitterroot, Teton, Yaak, Stillwater/Whitefish, and the N. Fork of the Flathead River had SWSIs between –3.0 and -3.4. Only six Montana river basins had SWSIs in the average range or better.

Ground Water

According to the Montana Ground Water Information System, located at Montana Tech, most of the climate sensitive wells are less than five feet below their quarterly averages. Approximately 40 percent of 307 wells with greater than five years of record, and monitored for climate, are currently at from one to five feet below pre-drought levels. About 20 percent of wells from the same group of 307 were down, but within one foot of being average. And 10 percent of wells monitored by the system were down from between five and ten feet below average. About seven percent of wells monitored fell in the ten to 20 feet below average category. Only two percent of wells tested in 2005 were found to be greater than 20 feet below their quarterly pre-drought averages.

The distribution of the 307 wells in the categories above, measured over the course of the January to March 2005 sampling, were comparable to the 291 wells monitored from October through December 2004. The state’s aquifers have dropped considerably over the course of five years of drought, with a number of small towns losing their municipal supplies from 2001 to 2003. Although some of the long-term monitoring wells across the state used by experts to determine

climate variability have shown indications that aquifers have experienced some recovery, recent measurements indicate that the hydrological aspect of drought remains.

U.S. Drought Monitor

The Drought Monitor map is a widely used multi-agency, cooperative weekly assessment product that describes the degree and extent of drought conditions across the nation.
See: http://drought.unl.edu/dm/monitor.html

The Drought Monitor ranks the degree of drought from Abnormally Dry (D-0) to Moderate (D-1), Severe (D-2), Extreme (D-3), and Exceptional (D-4). Montana water supply and moisture experts are consulted weekly in the national discussion regarding the data and information considered in the demarcation of areas and degree of drought impacts for Montana.

As of June 21, there has been dramatic improvement over large areas of the state in drought conditions according to the U.S. Drought Monitor. D4 Exceptional Drought and D3 Extreme Drought are now absent entirely from the DM map. D2 Severe Drought still stretches along the southern tier of the state east to west but has decreased significantly in recent weeks. D2 Severe Drought also applies to large areas of the Northwest and Southwest corners of the state. D1 Moderate Drought occupies a large portion of the Central and Southcentral areas of the state and a smaller area in the Northeast region. The Northcentral region, except for Glacier County, and part northeast corner are now in the D0 Abnormally Dry category. An area of the Northeast is now out of the drought according to the Drought Monitor Map.

The Climate Prediction Center's U.S. Seasonal Drought Outlook map released May 19 and valid through August calls for "drought likely to improve, impacts ease" east of the Continental Divide and "drought ongoing, some improvement" west of the Divide. See:
http://www.cpc.ncep.noaa.gov/index.htm

Climate Forecasts

According to the National Climate Prediction Center (CPC) the 30-day outlook for through June calls for normal temperatures and above average precipitation statewide with a slightly higher probability for moisture in eastern Montana. At this time, the 2.5-month long-lead outlook for June through August, calls for temperatures to be slightly cooler than average east of the Continental Divide, and average west of the Divide, and for precipitation to be slightly higher than average with an even higher percentage of average expected for southeast Montana.
http://www.drought.unl.edu/dm/forecast.html

According to the National Weather Service, the 8- to 14-day outlook through June 14 for the state calls for temperatures to be near normal and precipitation to be above normal east of the Continental Divide, and for temperatures to be below normal and precipitation to be above normal west of the Continental Divide.

Wildfire Potential

The Northern Rockies Coordination Center, located at the Missoula Regional Airport issues an early season fire assessment that can b found at: http://www.fs.fed.us/r1/fire/nrcg/ Assessments are also available on the NRCC Web Page: http://www.fs.fed.us/r1/fire/nrcc/

As of May 19, 2005, the Northern Rockies Coordination Center representative told the Governor's Drought Advisory Committee that there had been 351 federal land wildfires in 2005 for a total of 7,700 acres, and 31 Montana DNRC fires for a total of 790 acres burned, average for this time of year. Improvement over the course of April in the Standardized Precipitation Index (SPI) had been good news for forest and rangeland fuels. The SPI is a long-term indicator of moisture conditions.

The southwest area of the state had been dry from 2003-2004 entering this season, but the SPI had shown that it had reached the normal range. West of the Divide, the SPI had risen to a value of 2, above average, lowering wildfire potential for the near term. Precipitation has also benefited eastern Montana lowering a number of Energy Release Component (ERC) figures to the safe level. ERC index numbers provide a measure of how "hot" a wildfire can burn once ignited.

Moderate temperatures have also played a role recently in keeping ERC numbers low and safe. The Helena and Missoula area ERCs are about average and more rains are needed to keep the numbers low as we head into the warm and windy season. In the northwest part of the state, the Kootenai and Flathead areas had high ERCs but recent rains have helped moderate the number for the near-term, although more moisture is needed in the area soon. Areas of concern are the northwest and northcentral parts of the state for now.

Montana Drought Status by County

The Montana Governor's Drought Advisory Committee developed and implemented a new system of assessment of overall water supply and moisture conditions in 2004, that is performed on a monthly basis by its technical advisory subcommittee. About one week ahead of each monthly meeting of the Committee, the technical group convenes to assess the conditions of each county using a variety of moisture and water supply indices and field reports from county extension agents and state and federal field offices. The assessment uses a geopolitical format, following county boundaries as it classifies each county in one of six normative categories ranging from *"No Drought – Moist"* to *"Extremely Dry."* Intermediate categories include *No Drought, Slightly Dry, Moderately Dry, Severely Dry*, and *Extremely Dry*.
See: http://nris.state.mt.us/drought/status/Apr05/drtstatusbg.jpg

The Montana Drought Status by County map classifies various degrees of drought using six categories: *No Drought – Moist*; *No Drought; Slightly Dry; Moderately Dry; Severely Dry*; and *Extremely Dry*. The Drought Status Map for June 16 indicates that 39 counties are in the Slightly Dry category; 10 counties are in the Moderately Dry category; and 3 counties are classified as Severely Dry, down from May when 13 counties were ranked in that category. Presently, four counties are in the No Drought category. There are no counties in either the No Drought – Moist, or Extremely Dry categories at this time. Counties classified as within the No Drought category as of June 16 include three counties on the Hi-line: Blaine, Phillips, and Valley; and one west of the Divide, Lake County. East of the Divide, there are eight counties in the Moderately Dry category with two others west of the Divide. Three counties west of the Divide are in the Severely Dry category: Lincoln, Sanders, and Ravalli.

The National Weather Service climate divisions are clearly visible on the Montana Drought Status Map as bold lines around the groupings of counties for each of the seven divisions of the state, including western (Montana west of the Divide), southwest, northcentral, central, southcentral, northeast, and southeast. The map legend also notes the status categories, Moderately Dry and Severely Dry (or worse), which correspond with the *"Drought Alert"* and *"Severe Drought"* action levels used in the Montana Drought Plan. Montana Drought Status levels also correspond somewhat with the NRCS Surface Water Supply Index and the U.S. Drought Monitor Map so that the committee can corroborate among the map products. The plan has specific actions tied to each of the two response levels that state, federal, and local government are advised to take so that mitigation occurs in a timely manner. A table on the Drought Status section of the website lists the status for each county and notes whether the Drought Plan levels of severity have been triggered.

The Montana Drought Status Map is classified along county lines, in part, because USDA emergency assistance programs are assessed and approved on a county-by-county basis. Although the status map plays no official role in the determination of eligibility for assistance by USDA, it can be used as a cross reference tool and asserted by the committee or Congressional delegation on behalf of impacted producers located in counties that have failed to meet the damage thresholds required to become eligible for emergency assistance. The drought status may is also used as a guide to conditions for Montana by the National U. S. Drought Monitor Map Team.

Conclusion

The Montana Drought Response Plan defines drought as an extended period of below normal precipitation that causes damage to crops and other ground cover, diminishes natural streamflow; depletes soil and subsoil moisture, and because of these effects, causes social, environmental, and economic impacts to Montana.

Montana entered its sixth consecutive year of widespread drought in early spring 2005. But dramatic improvement in water supply and moisture conditions has clearly mitigated almost all short-term and to a lesser degree, long-term effects of drought. The hydrologic, or long-term aspects of the ongoing drought, can be found in declining streamflow west of the Continental Divide. The effects of years of cumulative effects from drought are evident in the long-term, or hydrological and socio-economic, aspects of drought still evident in places across the state.

This is not to say that we have little chance of seeing recovery in the meterological and agricultural drought, or shorter-term aspects of the drought. If the current trend of regular and timely precipitation events and cooler than average temperatures continue through June and into mid-July, recovery seen in some parts of the state may continue. However, the people and resources of the state remain vulnerable to the effects of the prolonged drought should precipitation trail off and daytime high temperatures move above average, as in summer 2003.

At this time, the probability of continued drought is ***Moderate*** for water users in river basins with below average mountain snowpack or valley precipitation, and reservoir storage. Above average precipitation has served to replace much of the water that did not arrive as snow in the early months of the 2004-2005 Water Year. Without continued precipitation and moderate high temperatures, water users in a number of river basins could experience shortages later this summer. The potential for drought to impact dryland farming and livestock grazing is ***Low to Moderate***.

RESPONSES TO WATER SUPPLY AND MOISTURE CONDITIONS

Special Drought Advisory Committee Meeting of Assistance Providers

Governor Brian Schweitzer called a special meeting of the Drought Advisory Committee on February 24 at the Capitol to initiate a pre-season dialog with state and federal agencies that provide assistance to Montana farmers, ranchers, and businesspeople coping with the financial burdens imposed by the ongoing drought. A brief update on drought conditions across the state by committee member agency representatives of the National Weather Service and USDA's Natural Resources Conservation Service was followed by presentations and discussion with representatives of Montana U.S. Senators Max Baucus and Conrad Burns, U.S. Representative Denny Rehberg, state universities, county commissions, USDA Farm Service Agency and Rural Development, Small Business Administration, and drought committee members. Live outreach to county commissioners across the state was provided for a question and answer session regarding assistance as well. The experts on hand fielded many questions called in by commissioners.

After identifying a number of issues related to the timely delivery of emergency assistance from existing programs, and of the need for other forms of assistance for numerous types of small business adversely affected by drought, it was decided that a letter from the Governor that would summarize the issues, needs, and ideas identified over the course of the meeting would be sent to the Congressional delegation for immediate consideration in securing timely assistance and for use as guidelines for future direction and development in the ongoing federal and state drought policy dialog. It was noted that emergency assistance is lacking for many other businesses that suffer as a result of drought including recreation-related business vital to Montana's economy such as guiding and outfitting, fishing, river and lake recreation, and winter recreation, such as the snowmobile and ski industries and the business that these activities support. The subject letter can be seen in the Appendix of this report.

Four Northwest Governors Meeting

On Wednesday, April 27 Idaho Governor Dirk Kempthorne, Oregon Governor Ted Kulongski, and Washington Governor Christine Gregoire joined Governor Schweitzer in Spokane, Washington to discuss drought and wildfire preparedness for 2005. Since the drought has adversely affected all four states, the governors convened to address the issues collectively, from a regional perspective. As a result of the meeting, the governors agreed to officially support the National Drought Preparedness Act now working its way through Congress, go on record in support of reauthorization of the Reclamation States Emergency Drought Relief Act, request eligibility for funding under the Agricultural Assistance Act, coordinate reporting about how the drought has affected agriculture, request restoration of federal funding for state and community wildfire suppression, request support for securing use of federal aviation support of air tankers for large remote wildfires, seek clarification over the issue of state authority to respond quickly to fight fire on federal lands before they spread, and to continue working together on recovery of salmon fisheries by coordinating dam operations of the Columbia River Basin.

National Drought Preparedness Act of 2005

National drought policy has been under review for over four years as the shortcomings of existing drought assistance programs became apparent with nearly 40 percent of the land area of the country in drought, according to the U.S. Drought Monitor in 2003-2004. The absence of a national drought policy that coordinates response across federal agencies made it readily apparent that the system for drought was woefully inadequate. The Western Governors Association (WGA) has taken a leading role in advocating for national drought policy reform since 2001, in part resulting in the Domenici-Baucus bill of 2003 named for the Senators of New Mexico and Montana.

As one of the Lead Governors on Drought, Governor Schweitzer signed a May 10, 2005 WGA letter to Senators Domenici and Bingaman in support of S. 802, the National Drought Preparedness Act of 2005. Senate Bill 802 would establish a comprehensive national drought policy that designates the U.S. Department of Agriculture as the lead agency for coordinating and integrating drought assistance programs using a National Drought Council for guidance and oversight. The Bill would encourage drought planning at all levels and focus federal funding on proactive mitigation of drought impacts. Emphasis would shift from responding to drought to preparedness for drought.

Another initiative supported by WGA and authorized by the bill calls for implementation of the proposed National Integrated Drought Information System (NIDIS). NIDIS would pull together a myriad of existing sources of real-time water supply and climate data analysis and forecasting capabilities into a system that would support informed decision-making at all levels of government, enabling water users and resource managers to assess risk from drought to their businesses, farms and ranches, and other areas of vulnerability. Governor Schweitzer has been involved with the National Drought Preparedness Act since 1998 when he served as a representative of agriculture in the National Drought Policy Commission. Congress authorized commission hearings across the U.S., one of which was held in Billings in 1999, where many officials and citizens testified in support of drought policy reform.

Internet Site

Shortly after taking office, Governor Schweitzer decided that he wanted a personal internet presence regarding the issue of drought for the Office of the Governor. As a farmer and rancher, the Governor realized need to reach out to the many Montanans deeply affected by the prolonged drought. In March, the Natural Resources Information System designed a special Internet site for Governor Schweitzer that is linked to the State of Montana site under the Office of the Governor: http://drought.mt.gov/ NRIS site continues to contain real-time moisture and water supply data, and water conservation information links. See: http://nris.state.mt.us/drought/ The Montana NRIS has provided support to the drought committee for over six years by managing the committee's Montana Drought Monitoring Internet site.

As the state agency assigned staffing responsibility to the Drought Advisory Committee, DNRC is developing a separate complementary site for the committee which will contain membership, meeting announcements and agendas, The Montana Drought Plan, news articles, correspondence, links to member agency Internet sites and other sites of interest, and assistance program information: http://www.dnrc.state.mt.us/Drought/index.html

Support For Watershed Groups and Local Drought Committees

A number of the nearly 50 watershed groups across the state now bring together stakeholder groups to coordinate planning for drought. Continued drought has been burdensome and challenging, but the coordinated and unified response of the groups, with government and the private sector playing supporting roles by providing hydrologists, biologists, engineers, and planners, has improved steadily over recent years. Most watershed drought plans are built upon an understanding of stakeholder needs and realize success through making adjustments to the timing of demands on limited supplies of water. When planning the timing of diverted water to minimize impacts is not feasible, sharing the water shortage using a pro-rated division of available water has been successful in many cases. Plans are updated yearly to integrate the lessons of experience gained over the course of the drought.

Drought Advisory Committee member agencies continue to provide support to watershed groups and local drought committees. FWP Fisheries Division's Water Resources Program and DNRC Water Resources Division personnel continue to provide planning, facilitation, and technical support to a number of watershed groups.

Drought Advisory Committee member agencies actively provide technical support personnel to assist watershed groups with water measurement, water supply management, and fishery assessment needs. Agencies have also directed regional office personnel to attend watershed group and local drought meetings to answer questions regarding water rights and sources of financial and technical assistance. For drought planning technical assistance call (406) 444-6628.

Reclamation States Emergency Drought Relief Assistance Act

The Bureau of Reclamation is authorized to provide funding assistance under the Reclamation States Emergency Drought Relief Act, Public Law 102-250, to mitigate effects of drought upon wetlands, rivers and streams, reservoirs, and municipal water supplies. Eligible projects include construction projects that manage limited supplies of water. Reclamation has limited funding available for projects in Montana for 2005. This is not a grant program. Reclamation contracts with the entities for the work to be performed and provides project oversight and monitoring. The program was open effective October 1, 2004 for 2005 proposals. The law requires that only "temporary" construction projects be funded, except for municipal well development.

Reclamation had approved nine temporary water conservation projects in 2004 for sealing leaky canals or ditches with a biodegradable (temporary) substance, polyacrylamide, applied by spraying. Reclamation may deny approval for about 30 such proposals from water user groups and canal companies totaling about $250,000 for 2005. The state has not heard from Reclamation regarding the approval of the 2005-sealant projects and in most cases the window for the work has passed for the season. The Canal Seal product is believed to be safe when applied according to manufacturer's instructions. If and when the canal sealant projects are officially denied by Reclamation, the state is considering re-submitting the same projects from reclamation except that use of synthetic liners for canals would be substituted for the sprayed sealant.

A number of small towns have received assistance from reclamation for municipal water supply problems over the period 2001-2005, including Circle, Sage Creek Colony, Ulm School, Pine Creek School, Hobson, Ryegate, Geraldine, Roy, Melstone, Galata, Shelby, Fairfield, Ingomar, and Forsythe. Requests and questions for Reclamation's drought relief program can be directed to Mr. Jess Aber at Montana Department of Natural Resources and Conservation at (406) 444-6628.

USDA Natural Disaster Determination 2004-2005

The committee has dedicated considerable time over the past five years in working with the USDA Farm Service Agency (FSA) to secure timely access for Montana farmers and ranchers to assistance programs to address impacts of drought. From 2000-2002, the Office of the Governor made special requests, on behalf of Montana agricultural producers, for "carryover" Natural Disaster Designations (NDD) for counties from the Secretary of Agriculture. The carryover NDD presented problems for USDA and its state and local offices however, and in 2003, the normal process was again resumed. The NDD process is outlined in the Montana Response Plan.

The Natural Disaster Designation (NDD) status received for 35 Montana counties for 2004 remains in place through June 25, 2005, for claims on losses in 2004. Governor Schweitzer has received six requests from county commissions for new NDDs for 2005. Recent improvement in moisture conditions has caused the state to hold the new requests temporarily since it is too early for FSA to begin the damage assessment process with the range and crops are a number of weeks from maturity and harvest. The Governor's Office plans to inquire as to whether the counties want to move ahead with their 2005 NDD requests by June 15. See:
http://www.fsa.usda.gov/mt/map-2004%20drought%20designated%20.jpg and:
https://disasterhelp.gov/portal/jhtml/usda/usdastatesec.jhtml?community=MT

The NDD activates a low-interest loan program for drought-impacted agricultural producers and for small business affected by drought, and provides certain tax breaks through deferrals of tax on income for producers that can demonstrate impacts caused by drought. See:
http://www.fsa.usda.gov/mt/disdesnr.htm

The FSA state office has approved about 14 Montana counties and reservations for the Emergency Conservation Program (ECP), which provides matching funds for stockwater improvements and development. See: http://www.fsa.usda.gov/mt/05ECP.pdf http://www.fsa.usda.gov/mt/april20nr.htm

Nine Montana counties have been approved for emergency grazing of Conservation Reserve Program lands thus far in 2005. See: http://www.fsa.usda.gov/mt/05crpgrazemap.htm
http://www.fsa.usda.gov/mt/april19nr.htm

Farm Service Agency has opened sign-up for the Livestock Feed Assistance Program
http://www.fsa.usda.gov/mt/fsamarch14nr.htm and it's Crop Disaster Program:
http://www.fsa.usda.gov/mt/march14nr.htm

Future Fisheries Program

Montana Fish, Wildlife, and Parks provided a special grant review period for Spring 2005 for its Future Fisheries Program to consider proposals that would provide an increase or preservation of instream flow on key streams or rivers during periods of low flow associated with drought conditions. Standard Future Fisheries application cycles occur in July and in December of each year. Any individual or group with a project designed to restore or enhance instream flow may apply. The program funding can be used to drill stock water wells to replace diversion of streamflow for stock water, thereby leaving additional streamflow instream.

Projects should result in significant benefits to stream fisheries on a long-term basis and the subject water must remain instream for a significant distance of the stream. Leased water will be monitored to ensure that the water is protected instream and not diverted by another user. Contact Mr. Glenn Phillips at (406) 444-5334 at Fish, Wildlife, and Parks for more information.

Staff Activities

Staff has provided support to the committee by facilitating assessment exercises of the committee's technical group, which is responsible for assessing water supply and moisture conditions in each of the state's 56 counties and preparing a drought status recommendation for the committee a week ahead of each regular meeting. Staff dedicated over 80 hours in February and March to the preparation and submittal of water conservation applications from almost 30 water user groups statewide for the U.S. Bureau of Reclamation's Emergency Drought Relief funding. The disposition of these proposals is on hold at this time.

Staff has conducted a number of interviews with both local and national print and visual media regarding drought conditions over the past four months. Staff also has drafted numerous pieces of correspondence and talking points for the Governor's Office regarding a number of issues, including national drought policy and the state's drought program. Staff has also appeared before a number of groups and committees to brief decision makers on drought status, including the Legislative Environmental Quality Council, DNRC's Regional Water Right Offices field staff, and DEQ's Public Drinking Water Systems Operators Steering Group.

Staff has also been involved in the design, management, and content decision making for the Drought Committee's Internet site and is in the final stages of releasing an update of the Montana Drought Plan. A continuing effort to assist a Montana ski area in obtaining a low interest emergency loan from SBA is underway. A majority of the ski area's clientele is dependent upon agriculture for its livelihood.

Drought Advisory Committee Meetings

For 2005, the committee has met February 24, March 22, April 21, and May 19 to assess and report conditions. Future meetings for 2005 are scheduled for June 16, July 14, August 18, September 15,

and October 20. Member agencies are providing assessments of their respective areas of responsibility and sharing actions taken with the committee and the media of the state at the meetings. The committee will continue to monitor changes in conditions and issue the drought status of the state's counties. On a monthly basis the committee will continue to take other appropriate actions and provide support to Montanans in accordance with the state's drought plan.

MAP FIGURES

Montana Drought Status by County
May 19, 2005

http://nris.state.mt.us/Drought/status/

Montana Surface Water Supply Index
June 1, 2005

http://www.mt.nrcs.usda.gov/snow/watersupply/swsimaps.html

U.S. Drought Monitor Map

http://www.drought.unl.edu/dm/monitor.html

Objective Experimental Long-term Drought Blend
http://www.cpc.ncep.noaa.gov/products/predictions/experimental/edb/lbfinal.gif

Montana Precipitation – Water Year through May

http://www.wrh.noaa.gov/tfx/image.php?wfo=tfx&type=data&loc=hydro&fx=watyr_pcntnorm.png

Montana Precipitation – May 2005

http://www.wrh.noaa.gov/tfx/dbgraphs.php?wfo=tfx&loc=monthly&fx=maypcntnorm.png

Montana Precipitation 6-year Departure From Average January 1999 – April 2005

http://www.wrh.noaa.gov/tfx/pdfs/hydro/mt_1999.pdf

Month-to-date Precipitation
http://www.wrh.noaa.gov/tfx/dbgraphs.php?wfo=tfx&loc=daily&fx=050623_monthly_pcp.gif

TABLES

TABLE 1

Remaining Snowpack in Montana and
Year-to-Date Precipitation[1]

Based on Mountain Data from NRCS SNOTEL Sites
As of Monday, May 2, 2005

Basin	Remaining Snow Water Equivalents [2] (% Of average)[3]	Year-to-Date [4] Precipitation (% of average)
Kootenai River	51	78
Flathead River	63	79
Upper Clark Fork River	70	71
Bitterroot River	50	62
Lower Clark Fork River	52	75
Jefferson River	77	72
Madison River	77	74
Gallatin River	84	73
Missouri River Headwaters	79	73
Headwaters Missouri Mainstem	81	70
Smith, Judith, & Musselshell Rivers	96	82
Sun, Teton, & Marias Rivers	59	69
Missouri Mainstem River Basin	78	76
St. Mary & Milk Rivers	60	76
Upper Yellowstone	69	70
Tongue River (Wyoming)	78	89
Lower Yellowstone	76	82

Notes

(1) Information taken from Natural Resource Conservation Service Snow-Precipitation Update.
(2) A "snow water equivalent" is the depth of snow equivalent to one inch of water.
(3) Reference period for average conditions is 1971-2000.
(4) October 1, 2004 to May 2, 2005.

TABLE 2

May 2005 Streamflow in Montana [1]

Station Name	Monthly [2] Mean Flow (cfs)	1971-2000 Average Monthly Flow (cfs)	% of Average Flow
Yaak River near Troy	1,590	3,320	48
Blackfoot River near Bonner	3,690	4,800	77
Clark Fork at St. Regis	15,240	19,800	77
Middle Fork of Flathead near West Glacier	6,160	9,250	67
Marias River near Shelby	1,200	2,400	50
Rock Creek below Horse Creek, near International Boundary	5.75	14.7	39
Yellowstone River at Corwin Springs	7,050	6,680	106
Yellowstone River at Billings	14,520	14,100	103

Notes

(1) Information is provided by the U.S. Geological Survey (USGS). According to the USGS, the eight gaging sites in Table 2 are representative of May 2005 streamflow conditions throughout Montana.

(2) Data is provisional and subject to revision.

TABLE 3

U.S. Bureau of Reclamation Reservoirs[1]

Reservoir	Drainage	June 14, 2005			Year Ago (6/14/04)	
		Contents (ac-ft)	% of Avg. [2]	% of Capacity	Contents (ac-ft)	% of Avg
Clark Canyon	Beaverhead	64,926	39	37	44,352	25
Canyon Ferry	Missouri	1,774,932	101	94	1,444,239	76
Gibson	Sun	95,506	110	99	95,778	99
Lake Elwell	Marias	812,595	91	84	829,099	85
Sherburne	St. Mary & Milk	51,893	125	76	34,699	51
Fresno [3]	Milk	69,118	108	74	53,587	57
Nelson	Milk	49,108	82	62	60,605	77
Bighorn Lake	Bighorn	1,004,818	107	94	671,954	63
Hungry Horse	South Fork Flathead	3,311,000	128	96	2,508,000	104

Notes

(1) Information provided by U.S. Bureau of Reclamation (USBR).
(2) Percent of 1971-2000 average storage.
(3) Fresno average storage revised according to results of 1999 sediment study.

TABLE 4

State-Owned Reservoirs
June 15, 2005

Reservoir	Drainage	June 15, 2005			Year Ago (5/31/04)	
		Contents (ac-ft) (1)	% of Avg.	% of Capacity (2)	Storage (ac-ft)	% of Avg.
Missouri River Basin						
Ackley Lake	Judith River	4,870	110	88	4,200	72
Bair	Musselshell	4,910	70	65	3,290	47
Deadman's Basin	Musselshell	37,820	52	30	13,210	18
Martinsdale	Musselshell	15,550	67	55	4,220	18
Middle Creek (Hyalite)(3)	Gallatin	9,950	98	94	9,930	97
Nilan	Sun River	10,150	101	90	6,450	64
North Fork of Smith	Smith River	11,460	100	100	10,860	94
Ruby River	Ruby River	38,620	105	100	28,120	77
Yellowstone River Basin						
Cooney (3)	Rock Creek	26,500	94	95	20,930	74
Tongue River (3)	Tongue River	80,590	137	100	49,420	59
Clark Fork Basin						
East Fork Rock Creek	Rock Creek	12,745	79	79	7,185	39
Nevada Creek	Blackfoot	11,340	102	95	9,150	72
Painted Rocks	Bitterroot	32,100	102	104	25,020	105

Notes
Information from Montana Department of Natural Resources and Conservation, State Water Projects Bureau

(1) Ac-ft is an abbreviation for acre-feet, a measure of volume. An acre-foot covers one acre of land one foot deep.
(2) 100 percent capacity indicates reservoir is full.
(3) Capacity and average storage values reflect post-rehabilitation data.

TABLE 5

Palmer Drought Severity Indices (PDSI) in Montana [1]

District	PDSI 4/17/04	PDSI 6/25/05	Cumulative Precipitation Deficit (Inches)	
			4/17/04	6/25/05
Northwest	-3.33	-0.29	3.69	0.00
Southwest	-6.97	-4.53	7.41	5.11
North central	-3.05	-3.70	2.65	5.03
Central	-5.18	-4.81	5.27	7.51
South central	-5.29	-1.82	6.55	1.71
Northeast	-0.51	+1.50	0.09	0.00
Southeast	-3.41	+2.86	3.22	0.00

Explanation: The Palmer Drought Severity Index describes the intensity of prolonged wet or dry periods as shown below. The figures are provisional and subject to change by CPC.

Range	Description
+4.0 and greater	Extremely moist spell
+3.0 through +3.99	Very moist spell
+2.0 through +2.99	Unusually moist spell
+1.0 through +1.99	Moist spell
+0.5 through +0.99	Incipient moist spell
-0.49 through +0.49	Normal
-0.5 through -0.99	Incipient Drought
-1.0 through -1.99	Mild drought
-2.0 through -2.99	Moderate drought
-3.0 through -3.99	Severe drought
-4.0 and less	Extreme drought

Notes

(1) Palmer Drought Severity Indices provided by Climate Prediction Center, Wash. D.C

TABLE 6

Montana Surface Water Supply Indices (SWSI)
June 1, 2005

Basin	SWSI	Basin	SWSI
Tobacco River	-2.0	Missouri River ab. Cnyon Ferry	-2.1
Kootenai Riv. bel Libby Dam	-0.4	Missouri R. bel. Canyon Ferry	-3.6
Fisher River	-3.5	Smith River	-1.9
Yaak River	-3.4	Sun River	-1.7
North Fork Flathead River	-3.0	Teton River	-3.1
Middle Fork Flathead River	-3.7	Birch/Dupuyer Creeks	-2.7
South Fork Flathead River	-1.4	Marias River	-2.8
Stillwater/Whitefish Rivers	-3.3	Musselshell River	-1.5
Swan River	-2.6	Missouri above Fort Peck Res.	-2.4
Flathead River at Polson	-2.9	Missouri River below Fort Peck	-4.0
Mission Valley	-0.3	Milk River	-0.7
Little Bitterroot River	-3.9	Dearborn River near Craig	-1.2
Clark Fork above Milltown	-2.1	Yellowstone R. ab. Livingston	-2.7
Blackfoot River	-2.3	Shields River	-2.2
Bitterroot River	-3.1	Boulder River (Yellowstone)	-2.5
Clark Fork bel. Bitterroot R.	-2.5	Stillwater River	-1.4
Clark Fork below Flathead R.	-2.8	Rock/Red Lodge Creeks-	+2.2
Beaverhead River	-2.7	Clarks Fork Yellowstone River	-2.9
Ruby River	-0.9	Yellowstone above Bighorn R.	-2.4
Big Hole River	-2.1	Bighorn River	+0.4
Boulder River (Jefferson)	-1.2	Little Bighorn River	-2.6
Jefferson River	-1.2	Yellowstone bel. Bighorn River	-1.3
Madison River	-1.6	Tongue River	+2.8
Gallatin River	-2.5	Powder River	-1.0

Note: The Surface Water Supply Index (SWSI) is an indicator describing predicted surface water availability. The June 1, 2005 SWSI describes spring surface water supply conditions near the start of the 2005-growing season. The map figure at the end of this report illustrates June 1, 2005 SWSI values.

APPENDIX

In 1991, Montana's Fifty-second Legislature passed House Bill 537, creating a state drought advisory committee and defining its responsibilities. The law states:

The Drought Advisory Committee shall submit a report to the governor describing the potential for drought in the coming year. If the potential for drought merits additional activity by the drought advisory committee, the report must also describe:

(a) Activities to be taken by the drought advisory committee for informing the public about the potential for drought;

(b) A schedule for completing activities;

(c) Geographic areas for which the creation of local drought advisory committees will be suggested to local governments and citizens; and

(d) Requests for the use of any available state resources that may be necessary to prevent or minimize drought impacts (Section 2-15-3308 MCA 1991).

Types of Drought

As the Montana Governor's Drought Advisory Committee continues to assess the current protracted cycle of drought, it is instructive to consider the different types of drought, as assessments vary depending upon type and duration of drought. In this regard, the National Drought Mitigation Center, located at the University of Nebraska, Lincoln, has prepared the following narrative:

What is Drought?

(National Drought Mitigation Center: http://www.drought.unl.edu/whatis/concept.htm)

Understanding and Defining Drought

The Concept of Drought

Drought is a normal, recurrent feature of climate, although many erroneously consider it a rare and random event. It occurs in virtually all climatic zones, but its characteristics vary significantly from one region to another. Drought is a temporary aberration; it differs from aridity, which is restricted to low rainfall regions and is a permanent feature of climate.

Drought is an insidious hazard of nature. Although it has scores of definitions, it originates from a deficiency of precipitation over an extended period of time, usually a season or more. This deficiency results in a water shortage for some activity, group, or environmental sector. Drought should be considered relative to some long-term average condition of balance between precipitation and evapotranspiration (i.e., evaporation + transpiration) in a particular area, a condition often perceived as "normal". It is also related to the timing (i.e., principal season of occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages) and the effectiveness (i.e., rainfall intensity, number of rainfall events) of the rains. Other climatic factors such as high temperature, high wind, and low relative humidity are often associated with it in many regions of the world and can significantly aggravate its severity.

Drought should not be viewed as merely a physical phenomenon or natural event. Its impacts on society result from the interplay between a natural event (less precipitation than expected resulting from natural climatic variability) and the demand people place on water supply. Human beings often exacerbate the impact of drought. Recent droughts in both developing and developed countries and the resulting economic and environmental impacts and personal hardships have underscored the vulnerability of all societies to this "natural" hazard.

There are two main kinds of drought definitions: conceptual and operational.

Conceptual Definitions of Drought

Conceptual definitions, formulated in general terms, help people understand the concept of drought. For example: Drought is a protracted period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield.

Conceptual definitions may also be important in establishing drought policy. For example, Australian drought policy incorporates an understanding of normal climate variability into its definition of drought. The country provides financial assistance to farmers only under "exceptional drought circumstances," when drought conditions are beyond those that could be considered part of normal risk management. Declarations of exceptional drought are based on science-driven assessments. Previously, when drought was less well defined from a policy standpoint and less well understood by farmers, some farmers in the semiarid Australian climate claimed drought assistance every few years.

Operational Definitions of Drought

Operational definitions help people identify the beginning, end, and degree of severity of a drought. (An abbreviated description of operational definitions is also available.) To determine the beginning of drought, operational definitions specify the degree of departure from the average of precipitation or some other climatic variable over some time period. This is usually done by comparing the current situation to the historical average, often based on a 30-year period of record. The threshold identified as the beginning of a drought (e.g., 75% of average precipitation over a specified time period) is usually established somewhat arbitrarily, rather than on the basis of its precise relationship to specific impacts.

An operational definition for agriculture might compare daily precipitation values to evapotranspiration rates to determine the rate of soil moisture depletion, then express these relationships in terms of drought effects on plant behavior (i.e., growth and yield) at various stages of crop development. A definition such as this one could be used in an operational assessment of drought severity and impacts by tracking meteorological variables, soil moisture, and crop conditions during the growing season, continually reevaluating the potential impact of these conditions on final yield. Operational definitions can also be used to analyze drought frequency, severity, and duration for a given historical period. Such definitions, however, require weather data on hourly, daily, monthly, or other time scales and, possibly, impact data (e.g., crop yield), depending on the nature of the definition being applied. Developing climatology of drought for a region provides a greater understanding of its characteristics and the probability of recurrence at various levels of severity. Information of this type is extremely beneficial in the development of response and mitigation strategies and preparedness plans.

Disciplinary Perspectives on Drought:
Meteorological, Hydrological, Agricultural and Socioeconomic

Meteorological Drought
Meteorological drought is defined usually on the basis of the degree of dryness (in comparison to some "normal" or average amount) and the duration of the dry period. Definitions of meteorological drought must be considered as region specific since the atmospheric conditions that result in deficiencies of precipitation are highly variable from region to region. For example, some definitions of meteorological drought identify periods of drought on the basis of the number of days with precipitation less than some specified threshold. This measure is only appropriate for regions characterized by a year-round precipitation regime such as a tropical rainforest, humid subtropical

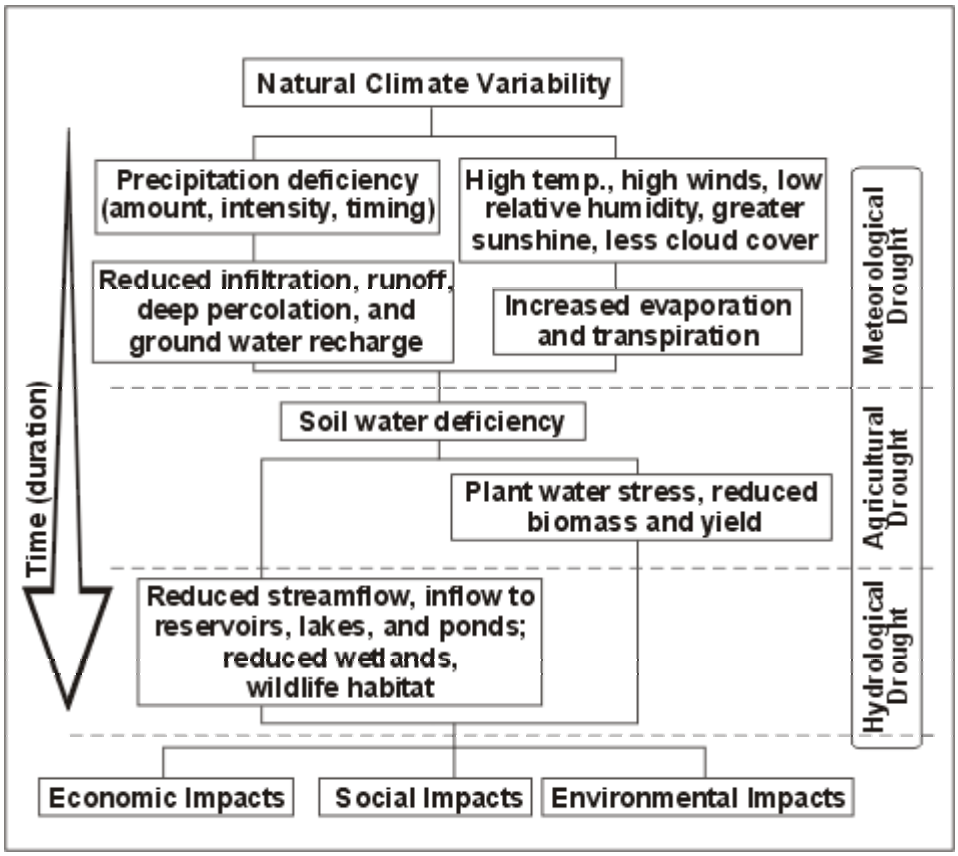
climate, or humid mid-latitude climate. Other definitions may relate actual precipitation departures to average amounts on monthly, seasonal, or annual time scales.

Agricultural Drought

Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced ground water or reservoir levels, and so forth. Plant water demand depends on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil. A good definition of agricultural drought should be able to account for the variable susceptibility of crops during different stages of crop development, from emergence to maturity. Deficient topsoil moisture at planting may hinder germination, leading to low plant populations per hectare and a reduction of final yield. However, if topsoil moisture is sufficient for early growth requirements, deficiencies in subsoil moisture at this early stage may not affect final yield if subsoil moisture is replenished as the growing season progresses or if rainfall meets plant water needs.

Hydrological Drought

Hydrological drought is associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply (i.e., streamflow, reservoir and lake levels, ground water). The frequency and severity of hydrological drought is often defined on a watershed or river basin scale. Although all droughts originate with a deficiency of precipitation, hydrologists are more concerned with how this deficiency plays out through the hydrologic system. Hydrological droughts are usually out of phase with or lag the occurrence of meteorological and agricultural droughts. It takes longer for precipitation deficiencies to show up in components of the hydrological system such as soil moisture, streamflow, and ground water and reservoir levels. As a result, these impacts are out of phase with impacts in other economic sectors. For example, a precipitation deficiency may result in a rapid depletion of soil moisture that is almost immediately discernible to agriculturalists, but the impact of this deficiency on reservoir levels may not affect hydroelectric power production or recreational uses for many months. Also, water in hydrologic storage systems (e.g., reservoirs, rivers) is often used for multiple and competing purposes (e.g., flood control, irrigation, recreation, navigation, hydropower, wildlife habitat), further complicating the sequence and quantification of impacts. Competition for water in these storage systems escalates during drought and conflicts between water users increase significantly.


Natural Climate Variability
Precipitation deficiency (amount, intensity, timing)
High temp., high winds, low relative humidity, greater sunshine, less cloud cover
Reduced infiltration, runoff, deep percolation, and ground water recharge
Increased evaporation and transpiration
Soil water deficiency
Plant water stress, reduced biomass and yield
Reduced streamflow, inflow to reservoirs, lakes, and ponds; reduced wetlands, wildlife habitat
Economic Impacts
Social Impacts
Environmental Impacts
Time (duration)
Meteorological Drought
Agricultural Drought
Hydrological Drought

OFFICE OF THE GOVERNOR
STATE OF MONTANA

BRIAN SCHWEITZER
GOVERNOR

JOHN BOHLINGER
LT. GOVERNOR

February 28, 2005

The Honorable Senator Max Baucus
United States Senator
511 Hart Senate Office Building
Washington, DC 20510

Dear Senator Baucus:

It is now almost certain that Montana will remain in the firm grip of what will be its seventh consecutive year of drought. The mounting cumulative effects include continuing low soil moisture and groundwater levels, near record low stream flows and reservoir levels, and dry forest fuels. This dim outlook translates to crop production shortfalls, irrigation and municipal water shortages, a serious wildfire season, impacts on the state's recreation and tourism industry, and a continued downward spiral for rural areas, with massive statewide economic consequences.

Over the course of this drought, we have learned that the cumulative impacts add up exponentially. Although short-term relief is always possible, and hopefully will arrive in time to ameliorate this year's fire season and agricultural production, the hydrologic and socio-economic drought runs deep. Everyone can agree that it will likely take years, not months, to recover from the effects of this drought.

These severe conditions warranted a special February 24 meeting of the Montana Drought Advisory Committee. In attendance were federal and state agency experts, agricultural representatives, county commissioners, and others. Also in attendance was Liz Ching from your office. We thank you for providing your staff to us on short notice.

The Drought Advisory Committee discussed a variety of mitigation measures and drought assistance programs, and came up with a number of recommendations applicable at the federal level. Any help you can provide in the way of budgeting, appropriations, or programmatic direction to federal agencies would be much appreciated. We understood from the comments of your staff representatives that for several items time is very short. These recommendations are listed below, grouped according to department and affected agencies:

Department of Agriculture

Farm Services Agency

- **Conservation Reserve Program 1)** Allow grazing of CRP acres 30 days earlier under Drought Declaration; establish earliest beginning date of grazing (not haying) at June 15th; **2)** Reduce grazing payment reduction rates; And **3)** Consideration should be given for producers who have contracts where vegetation is not yet established under the program due to drought.

- **Emergency Conservation Program 1)** It is imperative to have moneys available in time for producers to arrange for well drillers ahead of the grazing season. **2)** Ensure adequate funding both early and later on for producers in drought areas. This will alleviate the first-come, first-served effect related to contracting for a limited number of well drillers and other emergency practices.

- **Non-Insured Crop Disaster Assistance Program** Encourage full funding for non-program crop coverage.

- **Livestock Assistance Program; Livestock Indemnity Program; and Livestock Compensation Program; and Sugar Beet Disaster Assistance Program:** Need funding authorization from Congress.

- **Crop Disaster Assistance Program** Extend current program for 2003/2004 crop losses to 2005 crop losses.

- **American Indian Livestock Feed Program** Continue program, but need funding for 2005.

- **Emergency Loan Assistance Program** Continue funding and assistance for declared disaster areas.

- **Environmental Quality Incentives Program** EQIP needs to be funded at sufficient levels to mitigate the drought. For example, in 2004 NRCS funding was used to provide in-stream flows to sustain the only population of fluvial arctic grayling in the lower 48 states, on the Big Hole River. The year before, funding was provided to drill stock water wells for local ranchers so that less of the river would be diverted for that purpose. Fluvial grayling are a threatened species in Montana, and some would like to see the species listed on the endangered species list.

SNOTEL (and USGS Stream Gauging Programs, and NOAA Soil Monitoring)

- **These programs need to have funding levels increased** as they are critical to preparing for and responding to drought are the basic data on water supply and runoff. NRCS SNOTEL data and USGS stream flow gauging programs are the essential sources of this information. All water managers, from reservoir owners and hydropower operators to irrigators and municipal water system operators, use this information. Both programs have seen reductions in the number of gauging stations due to budget shortfalls, and budget proposals continue this decline. For example, the USGS National Streamflow Information Program currently fully operates 23 gauging stations in Montana for a cost of $293,000—two sites fewer than FY2004. It appears next fiscal year will see a similar decline due to budget reductions. These reductions prohibit the placement of stations to address both drought issues and emerging interstate and international water conflicts. Real-time data from both USGS-operated stations and USGS cooperative stations is vital, and increased funding for both is necessary.

- Support NOAA's Soil Monitoring Initiative, which will be used in USDA decision-making. Eventually, NOAA's soil moisture monitoring network would look like the USGS and NRCS systems.

Federal Crop Insurance Corporation

- Allow producers the ability to use county transition yields (T-yields) for actual production history in Drought Declaration years.

- Include hay barley coverage for producers as annual forages replace perennial forages in drought years.

- Include livestock range coverage (largest crop grown in Montana).

Forest Service

- Expedite early inspection and certification processes for fire contractors.

- Fully fund initial wildfire response programs, rather than the %50 in the Executive Budget.

<u>Departments of Commerce & Agriculture</u>

- Continue and **increase Small Business Administration and Rural Development assistance to non-agricultural businesses.** Assistance to winter and summer recreation industries is very limited. Right now, many small ski areas are coping with the worst snow conditions in decades. Another hard-hit sector is snowmobile recreation, and fishing and guiding businesses are beginning to see the effects of drought. Provide SBA and RD assistance in a more comprehensive manner.

- **Support for public education and information in regard to the economic effects on non-ag related businesses and urban communities.** These businesses need to know as early as possible whether they are eligible, and for which programs.

US Army Corps of Engineers

- Ensure that any Missouri River appropriations for the Corps include project dollars for rehabilitation of the diversion structure at Intake, Montana, to provide fish passage past the dam and screening of the canal inlet structure. This project would open up over 200 miles of high quality habitat for the endangered pallid sturgeon. Survival of the pallid sturgeon is a very high priority for the recovery program.

- **Assign top priority to two projects that augment Missouri River flows:** rehabilitation of the St. Mary's to Milk River diversion, and rehabilitation of the diversion structure at Intake.

Departments of Interior & Energy

- **The rehabilitation of the St. Mary's to Milk River diversion needs to move forward.** This critical but dilapidated facility provides up to 90% of the water in the Milk River, a tributary of the Missouri. Failure of the structure, which is imminent, would have a vast array of disastrous impacts to Montana Hi-Line communities.

- **Protect Montanans from potentially devastating budget cuts in the Bush Administration Budget** by continuing to oppose proposals that 1) " bring Power Marketing Administration electricity rates closer to average market rates throughout the country" and 2) call for "Pick-Sloan Missouri Basin Program Cost Recovery." These cuts—in combination with a continued, severe drought—will place great strain on all Montanans, especially irrigators.

- **Provide funding for the Drought Relief Assistance Program.** In 2003-2004, $800,000 was earmarked for Montana projects, but the fund is almost depleted, and requires a **$1.1 million earmark to remain solvent.** From 2002-2004, over a dozen rural communities facing severe shortages of potable water were able to drill new wells or deepen existing wells through the program. Without it, these towns would have been without drinking water because existing state and federal drinking water programs have eligibility requirements that inhibit access. **We anticipate more municipal water shortages as surface and groundwater supplies fail to meet demand.** Funding has also been used to apply biodegradable sealant to canals and ditches to prevent loss of scarce water for over a dozen water user groups. Water saved is often left in-stream to support the local fishery as part of a watershed group's drought plan. Project proposals are currently coming in at a rate of four per week.

Legislative Initiatives

- Continued strong support for all efforts for **passage of a National Drought Preparedness Act.** This legislation is an integral part of moving our country into the 21st Century. Drought management through a proactive approach will coordinate information and drought assistance and minimize the damage caused by future droughts.

- The enabling language within the **Reclamation States Emergency Drought Relief Act of 1991 is overdue for revision.** It does not reflect the duration of drought in the western states as cumulative impacts mount. The Act should move beyond municipal water supply wells as the sole exception to the provision allowing only projects that are "temporary" in nature. This would allow more sophisticated projects during an ongoing, protracted drought—projects that would be used into future years to conserve water in the west.

- Most assistance program rules were written in anticipation of droughts of short duration. It is overly burdensome for producers and business owners, as well as local federal agency personnel, to be required each year to re-establish the case that they continue to suffer from drought. **Reform of our national drought policy is badly needed.**

  Given the continual duration of the ongoing drought, **the U.S. Drought Monitor, which is prepared weekly through rigorous review by some of the nation's top experts, must be further integrated into other assistance program eligibility requirements.** This measure would facilitate assistance delivery not only to

counties where producers met specific quantifiable damage documented last fall, but also to those where conditions continue to worsen. For example, the Drought Monitor could be used for the Farm Service Agency's Livestock Assistance Program, as it was for the first time in 2003.

Appropriations Initiatives

- Support the Montana Association of Counties' request for funding of weather monitoring stations (FY2006 request of $364, 000 in federal cost share for 100 additional stations). Many of Montana's counties encompass over 2,000 square miles, and as a result can experience widely varying precipitation events in the course of the same year. This presents problems for accurate assessment of precipitation monitoring.

Other Concerns for Consideration

- Already many of **Montana's blue ribbon trout rivers are at less than half of their long term median flows, and are rapidly moving toward historic low flows.** Mountain snow pack is currently at a fraction of average, and forecasts are for more of the same. As water levels drop, temperatures will rise, and irrigators will be under pressure to shut down head gates and pumps. Anglers will again face emergency closures in some stream reaches to reduce stress mortality. Miles and miles of national legacy trout waters could be lost this summer, unless adequate money for emergency water leasing and forage replacement can be found.

- Funding and support to **address noxious weeds** (specific to drought tolerance and the effect of drought on private and public lands).

- Provide **producer herd support** with continued operation and funding of the Non-Fat Dry Milk (NDM) program, and allowing deferral of capital gains on livestock liquidated due to drought.

- Support **assistance for dust abatement for municipalities and county road maintenance** in drought conditions.

Status of National Drought Declarations in Montana's Counties

Finally, I must relate concerns regarding disaster determination. Last fall, 39 Montana counties met the requirements for USDA's Primary Natural Disaster Determination, which paves the way for IRS tax deferrals and low-interest loans. Other affected counties received a Contiguous NDD designation. In a number of instances, **the status of these contiguous counties has since worsened considerably.** This means that **benefits afforded to producers in Primary NDD counties will be accessible to producers in these contiguous counties no earlier than Fall, 2005**. I am asking Secretary of Agriculture Mike Johanns to extend the relief provided by primary designations to contiguous counties. Your support of this request is appreciated and would be of great benefit to Montana producers.

Again, I appreciate your great help and cooperation in this effort. Together, we hope and pray for a turn in the weather pattern that will alleviate the need for the measures outlined above. Together, we must also prepare for the worst.

Best personal regards.

Sincerely,

Brian Schweitzer
Governor
State of Montana

WESTERN GOVERNORS' ASSOCIATION

Bill Owens
Governor of Colorado
Chairman

Janet Napolitano
Governor of Arizona
Vice Chair

Pam O. Inmann
Executive Director

Headquarters:
1515 Cleveland Place
Suite 200
Denver, Colorado 80202-5114

303-623-9378
Fax 303-534-7309

Washington, D.C. Office:
400 N. Capitol Street, N.W.
Suite 388
Washington, D.C. 20001

202-624-5402
Fax 202-624-7707
www.westgov.org

May 10, 2005

The Honorable Richard Shelby
Chairman
Senate Appropriations Subcommittee
on Commerce, Justice and Science
S-146A Capitol Building
Washington, DC 20510

The Honorable Frank Wolf
Chairman
House Appropriations Subcommittee
on Science, State, Justice, and
Commerce, and Related Agencies
H-309 Capitol Building
Washington, DC 20515

The Honorable Barbara Mikulski
Ranking Member
Senate Appropriations Subcommittee
on Commerce, Justice and Science
SH-123 Capitol Building
Washington, DC 20510

The Honorable Alan Mollohan
Ranking Member
House Appropriations Subcommittee
on Science, State, Justice, and
Commerce, and Related Agencies
1016 LHOB
Washington, DC 20515

Dear Chairman Shelby, Senator Mikulski, Chairman Wolf, and Representative Mollohan:

As you may know, a historic drought in many of our states continues unabated, and the West is struggling to cope with the numerous difficulties associated with the drought. The Administration has also recognized the need to take proactive steps to mitigate the effects of the drought. In fact, the President's budget request for FY 2006 includes $7.4 million for programs that support the National Integrated Drought Information System (NIDIS), including $4 million for a Water Resources Initiative to support development of a nationwide water resources forecasting capability, and $3.4 million for Cooperative Observer Network Modernization. The Western Governors support funding for the full implementation of NIDIS.

On June 21, 2004, the Western Governors unanimously adopted a report developed in partnership with the National Oceanic and Atmospheric Administration (NOAA) entitled, *Creating a Drought Early Warning System for the 21st Century: The National Integrated Drought Information System (NIDIS)*. As envisioned in the report, NIDIS would coordinate and integrate a variety of observations, analysis techniques and forecasting methods in a system that would support drought assessment and decision-making at the lowest geopolitical level possible. NIDIS is intended to provide water users across the board–farmers, ranchers, utilities, tribes, land managers, business owners, recreationalists, wildlife managers, and decision-makers at all levels of government–with the ability to assess their drought risk in real time and before the onset of drought, in order to make informed decisions that may mitigate a drought's impacts. The report is available online at www.westgov.org.

During his January 6, 2005, confirmation hearing, U.S. Department of Agriculture Secretary Mike Johanns stated:

> *As co-lead governor on drought for the Western Governors' Association, I teamed up with Governor Richardson, of New Mexico, and others, to advocate on a bipartisan basis for an integrated drought monitoring system. By establishing an early warning system, we could better forecast future drought cycles, thereby allowing for better preparation. We extended our partnership to the National Oceanic Atmospheric Administration and an outline of our ideas has been presented to this committee.*

We commend the President for including mention of NIDIS in his FY 2006 budget request. We also commend NOAA for including NIDIS in its "Strategic Plan for the U.S. Integrated Earth Observation System." We urge you to follow through on this request by appropriating funds to NOAA for the full implementation of NIDIS. Thank you very much for your consideration of this important request.

Sincerely,

Mike Rounds	Bill Richardson	Brian Schweitzer
Governor of South Dakota	Governor of New Mexico	Governor of Montana
Lead Governor on Drought	Lead Governor on Drought	Lead Governor on Drought

cc: The Honorable Mike Johanns, USDA Secretary
The Honorable Conrad Lautenbacher, NOAA Administrator

OFFICE OF THE GOVERNOR

STATE OF MONTANA

JUDY MARTZ
GOVERNOR

STATE CAPITOL
P O BOX 200110
HELENA, MT 59620

September 14, 2004

Ms. Ann Veneman
Secretary
U.S. Department of Agriculture
14th Street and Independence Avenue
Washington, D.C. 20250

Dear Ms. Veneman:

As a result of Montana's ongoing drought in 2004, I have submitted three previous requests for Natural Disaster Determinations (NDD) that include the following thirty-nine (39) counties:

- Beaverhead County
- Big Horn County
- Blaine County
- Broadwater County
- Carbon County
- Carter County
- Cascade County
- Custer County
- Dawson County
- Prairie County
- Roosevelt County
- Rosebud County
- Sanders County
- Fallon County
- Fergus County
- Flathead County
- Glacier County
- Golden Valley County
- Jefferson County
- Judith Basin County
- Lake County
- Lewis & Clark County
- Stillwater County
- Sweet Grass County
- Teton County
- Toole County
- Liberty County
- Madison County
- McCone County
- Meagher County
- Mineral County
- Musselshell County
- Park County
- Powder River County
- Powell County
- Treasure County
- Wheatland County
- Wibaux County
- Yellowstone County

Since my latest request, submitted to you on July 26, 2004, I have received an additional request for similar consideration from the Board of County Commissioners of Petroleum County and the Chief Executive of Butte-Silver Bow. I am now requesting that Petroleum County and Butte-Silver Bow County be added to the list of Montana counties seeking Natural Disaster Determinations (NDD). The addition of Petroleum County and Butte-Silver Bow County brings the total to 41 of 56 Montana counties seeking NDDs for drought in 2004.

In a separate, but related matter, I would also like to amend my previous requests to include Natural Disaster Determinations for a series of non-drought, agricultural events that have adversely affected producers in several Montana counties this year.

County Commissioners have requested Natural Disaster Determinations for the following events:

Late Spring Frosts (May 1 – June 30)
Carter County
Fallon County
Liberty County

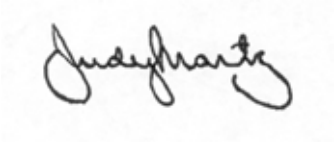
High Winds (April 1 – and continuing)
Carter County

Insects (July 1 – and continuing)
Fallon County
Liberty County
Sanders County

The cumulative impacts of drought and these other agricultural disasters continue to have adverse effects on agricultural producers as well as the business communities throughout the state. I am forwarding a copy of this letter to the State Farm Service Agency office so they may begin to compile the necessary damage assessment information.

Your prompt review and approval of this request will be greatly appreciated. Thank you in advance for your cooperation in this matter.

Sincerely,



Governor

cc: Lt. Gov. Ohs
Dan McGowan
Ralph Peck
BG Randy Mosley
Randy Johnson
Jesse Aber